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OTTAWA, ONTARIO

Application No. : 2,365,804
Owner : NEC CORPORATION
Title : OPTICAL PATH CONTROL APPARATUS WITH MIRROR SECTION, AND MANUFACTURING METHOD FOR THE SAME
Classification : G02B-26/08
Your File No. : 76817-21
Examiner : David Green

YOU ARE HEREBY NOTIFIED OF :

- A REQUISITION BY THE EXAMINER IN ACCORDANCE WITH SUBSECTION 30(2) OF THE *PATENT RULES*;
- A REQUISITION BY THE EXAMINER IN ACCORDANCE WITH SECTION 29 OF THE *PATENT RULES*.

IN ORDER TO AVOID MULTIPLE ABANDONMENTS UNDER PARAGRAPH 73(1)(A) OF THE PATENT ACT, A WRITTEN REPLY TO EACH REQUISITION MUST BE RECEIVED WITHIN 6 MONTHS AFTER THE ABOVE DATE.

This application has been examined as originally filed.

The number of claims in this application is 24, as originally filed.

The examiner has identified the following defects in the application:

A search of the prior art has revealed the following:

References Applied:

✓ Canadian Applications

| | | | |
|-----------|---------------|------------|------------------|
| 2 299 832 | Sept. 4, 2000 | g02b-26/08 | Kato et al. |
| 2 288 920 | June 24, 2000 | G02B-26/08 | Macdonald et al. |
| 2 230 664 | July 15, 1998 | G02B-26/02 | Colbourne et al. |
| 2 277 471 | July 16, 1998 | G02B-26/08 | Baker |

Canadian Patent

1 277 525

Dec. 11, 1990

G02B-6/38

Stanley

United States Patent

6 075 239

June 13, 200

G02B-6/10

Aksyuk et al.

Kato et al. disclose an optical switch in which a mirror is carried on a movable substrate that is moved relative to a fixed substrate, in order to switch a light path between a plurality of outputs.

Macdonald et al. disclose an optical switch mechanism that uses differences in fluid pressure across a membrane to effect switching between outputs.

Colbourne et al. disclose an optical attenuator that uses a mirror supported on a substrate to adjust the input angle of a light beam to an output port. The adjustments are made by using thermal, electrical or magnetic signals to cause expansion or contraction in supporting members.

Baker discloses an optical modulator which uses electrically induced strain in a deformable material to control an optical signal.

Stanley discloses an optical mirror mounted on a movable member, the movement of which is controlled by thermal expansion in the member, when a current is applied.

Aksyuk et al. disclose a light actuated micromechanical photonic switch, in which a mirror is moved so as to control the path of a light beam. The movement is effected by mechanical linkage means.

Claims 1, 4, 5 and 7 to 24 do not comply with Section 28.3 of the *Patent Act*. The subject matter of these claims would have been obvious on the claim date to a person skilled in the art or science to which they pertain having regard to Kato et al. and any one of Macdonald et al., Colbourne et al., Baker, Stanley or Aksyuk et al.

All of the cited references disclose various optical switches and optical control devices that could be adapted to act as switches. The methods of controlling switches as recited in the listed claims are all substantially the same as those in the cited references. As well, it would have been obvious to one skilled in the art to have used a particular type of mirror in the disclosed devices, and to have used a particular method of forming the structure of the claimed devices. As such, these claims must be amended to clearly define a patentable advance in the art.

Claims 2 and 4 to 7 are indefinite and do not comply with Subsection 27(4) of the *Patent Act*. These claims, which are all dependent on claim 1, all recite a single second optical path, while claim 1 recites a plurality of second optical paths. As such, these claims must be amended to clarify the number of second optical paths being used.

This application does not comply with Subsection 27(3) of the Patent Act. The specification does not correctly and fully describe the invention and its operation or use. In Figure 22c, the poles of the magnets 47 have the north and south poles reversed from where they should be to properly effect a switching movement. The magnets in this figure should be arranged as shown in similar figure 35c.

The figures and the description do not comply with Section 82 of the Patent Rules. Reference characters not mentioned in the description must not appear in the drawings, and vice versa. On page 35, line 16, there is a reference to rotation axel L, which is not shown in the figures.

A statement in an application, such as found on page 20, lines 3 to 5, which incorporates by reference any other document, does not comply with Subsection 81(1) of the Patent Rules.

In accordance with Subsection 81(2) of the Patent Rules, all documents referred to in the description of an application must be available to the public. Reference to the document on page 20, lines 1 to 3 must be deleted or replaced by its corresponding patent or publication number.

In addition to this, there are some grammar and spelling errors in the claims. In claim 3, lines 2 to 3, the phrase "said driving section is a ultrasonic wave generating source is a piezo-electric device" would read better as: "said driving section is *an* ultrasonic wave generating source, **comprising** a piezo-electric device". As well, in claim 11, line 2, and claim 13, line 2, the word "having" should be "has", and in claim 11 line 7 and claim 13 line 7, the word "tow" should be "two".

In view of the foregoing defects, the applicant is requisitioned, under Subsection 30(2) of the Patent Rules, to amend the application in order to comply with the Patent Act and the Patent Rules or to provide arguments as to why the application does comply.

Under Section 29 of the *Patent Rules*, applicant is requisitioned to provide an identification of any prior art cited in respect of the United States and European Patent Office applications describing the same invention on behalf of the applicant, or on behalf of any other person claiming under an inventor named in the present application, and the patent numbers, if granted. Amendment to avoid references cited abroad may expedite the prosecution. In accordance with Subsection 29(3) of the *Patent Rules*, if the particulars are not available to the applicant, the reason why must be stated. Accordingly, if the applicant did not apply for a patent in a foreign country, it must be stated.

2,365,804

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The above requisitioned information must be provided regardless of the current status of the foreign applications.

David Green
Examiner
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